

**Requirements Capture: Novel Automobile Safety System**

**Group Number: 8 (SD1210)**

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## Introduction

This senior design project will explore the applications of using a sensor and a radio frequency (RF) system to keep the driver of an automobile safe. In the US and around the world there are many accidents that happen around stop signs. There are many reasons why accidents happen there, but a large reason is because drivers do not see the stop sign. Our project is aimed to fix this problem, by having a system that alerts drivers when they are approaching stop signs.

## Top Priority Requirements

- Use a RF transmitter and receiver to communicate between the stop sign and automobile
- A sensor on the stop sign will detect when an automobile is approaching it
- The RF transmitter on the stop sign will communicate with the RF receiver in the car to alert the driver
- The RF transmitter will be primarily powered by a battery, while the RF receiver will be powered by the automobile
- The system must comply with all FCC regulations
- The system should be designed to be used in existing vehicles
- The system should have a low overall cost
- The system should have a simple and economical design

## Optional Requirements (Time and Cost Permitting)

- The speed of the automobile is saved for the use by police department
- Integrate a solar panel to charge the battery

## Summary

This design project will explore various topics including sensors and RF communications, and apply them to automobile safety. The system developed will use a sensor and RF communications to alert the driver of an automobile when they are approaching a stop sign. The goal of this system is to help improve passenger safety by alerting the driver when they are approaching a stop sign. The system will abide by all FCC regulations when added to existing vehicles. The project will have a low overall cost with a simple and economical design.

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